Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A process for producing a silicon single crystal that is doped with a highly volatile foreign substance, comprising:

adding a quantity of the foreign substance N_0 to a melt ~~in order to achieve a desired resistance of the melt~~, said foreign substance being in elemental or molecular form and containing at least one element selected from the group consisting of arsenic, antimony and phosphorous;

pulling ~~the~~ a single crystal from the melt ~~which is held~~ under ~~predetermined~~ process conditions in a crucible;

after-doping the melt at a time t at least once during the pulling process, with a quantity $\Delta N(t)$ of the foreign substance, in order to compensate for losses caused by the foreign substance evaporating out of the melt, wherein the quantity $\Delta N(t)$ of the foreign substance is calculated according to the equation:

$$\Delta N(t) = N_0 - N(t) = N_0 \cdot (1 - e^{-\lambda a \cdot t})$$

or according to the approximation equation:

$$\Delta N(t) = N_0 \cdot \lambda_a \cdot t$$

where λ_a is an evaporation coefficient which describes a process-specific evaporation behavior of the foreign substance and which is obtained after a resistance profile R(t) of a further single crystal has been measured and by calculation according to the equation:

$$R(t) = R_0 \cdot e^{\lambda a \cdot t}$$

where R_0 is a starting resistivity and the further single crystal is pulled under the ~~predetermined~~ process conditions without being after-doped with the foreign substance.

2. (Cancelled).

3. (Original) The process as claimed in claim I, wherein the evaporation coefficient λ_a is integrated in an automatic process control.

4 - 6. (Cancelled)